OCTOBER, MDCCCLX.

THE ZOOLOGIST:

A

POPULAR MONTHLY MAGAZINE

OF

NATURAL HISTORY,

AND

JOURNAL FOR RECORDING FACTS AND ANECDOTES

RELATING TO

QUADRUPEDS, BIRDS, REPTILES, FISHES, ANNELIDES,
INSECTS, WORMS, ZOOPHYTES, &c.

THEIR HABITS, FOOD, RETREATS, OCCASIONAL APPEARANCE,
MIGRATIONS, NESTS AND YOUNG.

No. CCXXI.

LONDON:
JOHN VAN VOORST, PATERNOSTER ROW.

Price ONE SHILLING.

Natural History versus *Geography and Others: a Plea in a Great Cause.* By the Rev. Hugh A. Stowell, M.A.

In this day and generation of ours, when popular education is the fashionable mania (I say it not disparagingly), and when Science and Art are with more or less success attempted to be popularised by so many and often by so gifted minds and pens, is it not matter for surprise and regret that Natural History as a branch of national education should have found so few advocates compared with the other "graphies" and "ologies" that it has been almost excluded from the all-embracing scheme of the Committee of Privy Council?

For the large majority of the pupils of our national schools, much that they learn—we may take Geography as a by no means extreme example—can never have any practical use beyond the general expansion it may give to their minds. Now surely the study of Natural History would produce this effect in at least an equal degree, while at the same time it possesses this great advantage in addition, that it would generally prove far more attractive, and would therefore be more heartily taken up and more readily remembered than most of the subjects now taught in our schools. That this last is a point of no small importance, all who have witnessed how much is usually forgotten, and how soon after leaving school, will be ready to admit.

Moreover, my own experience, so far as it has gone, convinces me that, educate as you will, you will never make the mass of our rural population readers, unless indeed a radical change in the circumstances of their daily life shall at some future time give an external impulse to their minds. Taken from school at a very early age,—obliged to toil from dawn till almost dark under the soporific influence of the open air,—their homes too often comfortless and lacking the needful privacy,—and above all wanting themselves in a great measure the sharpening contact one with another which a busy town affords,—their work solitary and their dwellings far apart,—is it, I ask, reasonable to expect that they will acquire a taste for habitual reading of any kind?

Yet while experience, backed by reason, leads me to despair of making this class readers, it only confirms my belief that they may be made observers—close and rational observers. Thus it is by calling forth and stimulating and training their powers of observation that it seems to me you have the best chance of expanding and elevating their minds; and for this purpose what means so effectual as the study

BRITISH MUSEUM

of Natural History can be proposed? But in order to secure the desired end Nature must not be "got up" from books, technically and scientifically, and committed to memory as a task, but rather read in her own simple though sublime language, and studied in her own pleasant way, which, by appealing persuasively at once to the senses and to the higher faculties, is sure to make a deeper and more lasting impression on the mind and memory than the mere "rote" system. This is only to be accomplished by lessons on objects. I would have every teacher able to take his or her pupils out into the lanes and fields and woods, and there to open up to them the beautiful workings of God in Nature, which are of necessity secrets hidden from, or at best mysteries dimly revealed to, the untaught eye. The wondrous unfolding of the flowers from seed to fruit,—their hidden uses to man,—the curious forms of insect life they nourish, each one its own,—the mysterious powers of seeming sensibility wherewith some of them are endowed,—the remarkable adaptation of others to their peculiar circumstances of soil and climate,—the many minute testimonies they one and all bear to the wisdom and goodness of their and our Creator;—in this branch of Natural History alone is there not endless matter for useful lessons, and would they not prove as interesting as useful? Then, again, a little trouble in collecting a few specimens, and a small outlay for a microscope, what a vast store of interest and instruction would they provide against the rainy days of winter!

When the children thus taught come to leave school, *there* are the books they have learnt to read and to love all around them — in the fields turned up by the ploughshare, in the hedges laid bare by the bill, by the highways and by-ways as they go to work, in their gardens and at their doors when their day's work is done. The great volume is open before them always and everywhere—open to the very poorest "without money and without price"—open to the most wearied and toil-worn without a long walk to the library to fetch it. How then can they help reading from it, if once its language has been interpreted and become familiar to them? And reading, how can they help being interested—reflecting—improving their minds? True the same volume is open to the untaught, but how open? Just as a book that you may set before an infant; it may see the letters, it may crow over the pictures; but it understands nought of it. Or as a child just beginning to spell may tell over every letter upon the page, and even syllable them all, but yet is none the wiser for them.

So is it with him who, untaught in his younger days, sees a great deal of what Nature is doing around him, and perhaps feels a sort of admiration of it at times, and it may be even goes further still, and compares some two or three of the things he has seen in his mind; nevertheless he cannot comprehend them; he knows not the why and wherefore of them, nor even what they mean. Of course he is comparatively uninterested, and most of what he sees is lost upon him. It merely passes before his eyes and over his mind without leaving a trace behind.

It may seem a piece of unwarrantable presumption in one who freely acknowledges his comparatively limited experience to speak thus confidently on a subject of such transcendent importance as that of education, but feeling strongly on this point it is my earnest desire to aid, in however lowly degree, in calling that attention to the subject which it surely deserves, but has certainly not hitherto received.

May I be permitted, in conclusion, to express my fervent hope and trust that the day is not very far distant in which the Sacred Volume of Nature—every letter of it, remember, bearing the autograph Divine—will no longer be allowed to remain a sealed book to any village scholar in Great Britain. Then many a poor labourer will go forth to his daily toil cheered by its glorious utterances written in his head and on his heart, while its ever open pages invite him to a fresh lesson of love from day to day, to his great and endless benefit, and to his Creator's higher glory.

HUGH A. STOWELL.

Christ Church, Manghold, Isle of Man,
August 31, 1860.

Zoological Phenomena.—The reader will please observe that the proprietor of the 'Zoologist' receives nothing for the advertisements reprinted below. They are preserved as literary curiosities, and are valuable as bearing conclusive evidence to the state of Natural History education in 1791 and 1860. There must be a public attracted by such advertisements, the advertisers being too wise in their generation to pay so dearly for their love of fun.

The Greatest Living Curiosity in Europe.

MR. BROADBENT has received instructions to SELL BY AUCTION, on Monday next, July 30, 1860, at one o'clock, at the London Hotel, Bridge-street, the ZEBU BULL, that was taken from Nana Sahib and his followers the night after the siege of Lucknow. This extraordinary animal contains five distinct and pure breeds—firstly, the head of the calf; secondly, the legs of the antelope; thirdly, the feet of the deer; fourthly, the hump of the camel; and fifthly, the tail and hind quarters of the lion. It also possesses the extraordinary faculty of moving its horns at pleasure. To noblemen, gentlemen, zoologists and others, the above animal is especially recommended to their notice. On view morning of sale.—*From the 'Manchester Courier' of July 4, 1860.*

The Wombwell of the last Century.—Copied *verbatim et literatim* from the 'Kentish Gazette' of December 16, 1791.

MR. FOSCO'S Collection of WILD BEASTS—from various parts of the world. To be seen at the Cattle-market without St. George's gate, Canterbury, every lawful day from 10 o'clock in the morning till night.

This curious collection was shown before His Majesty, and all the Royal Family, the Duke of Montagu, Lords Chesterfield, Courtney and Sidney, and a great number of the nobility, at Weymouth, the 16th day of July, 1789.

I. The Noble Hunting Tyger from Bengal. II. A Young Sea Lion from the Cape of Good Hope. The Keeper is obliged to wash him in water every day. III. Is the Ethiopian Savage, or the Hairy Man, 5 feet 3 inches high, and as stout as any person: the only one in the Kingdom. This Wonderful production of Nature has body, breasts, arms, and fingers entirely like a Christian [*Query*, as to the *anatomical* distinction between Christians and Heathens?], and is so sensible as to understand every word the keeper says to him! IV. Is the Ouran-Outang or the Wild Man from the West Indies. V. Is a very curious Porcupine. This astonishing creature was bred upon the coast of Barbary: it is half a bird and half a beast; every quill on his body is 18 inches long: when he shoots his quills, he throws them 150 yards from his body: and each quill is as hard as iron. [An able-bodied volunteer that!] VI. Is (*sic*) the Muscovite Cats, a male and female, striped like a Tyger, and spotted like a Leopard, the only two alive in England. VII. Is the Jackall, or Lion's Provider. This creature goes 5 or 6 miles in the forest to provide for the Lion, and what he cannot carry he will conduct the Lion to. VIII. Is the American Monster [Legree?]. IX. Is the little Jenny Jip, the Night-walker, 72 years of age. X. The Unknown Animal from Botany Bay, brought to England by Captain Lee, in the Ship Rover: the legs are straight and beautiful, and the feet much like a chicken's; its head like a rabbit, and a back like a pig; and has been viewed by some few of the Eminent philosophers in England; but they cannot give the Animal a Name as yet.—And many other animals and birds too tedious to mention.

⁂ When shown the Birds and Animals are clean, young [this implies a tolerable longevity in the above-mentioned Miss Jane Jip, whoever she may be], and pleasing, adapted to the inspection of Naturalists, and those who admire the Novelties of the Creation. The largest beasts are so secured in iron dens that Ladies and Gentlemen may see them with the greatest safety.—Ladies and Gentlemen 1s.; Tradesmen 6d.; Working People 3d.

☞ Now, Ladies and Gentlemen,—you may have the opportunity of seeing this noble collection of wild Beasts, consisting of the large Sea Lion, the Hunting Tyger, the Chief Justice of the brute creation [their Judge Jeffreys rather], a pair of Muscovy Cats, the young Congrow, the Porcupine, and a number of birds and beasts too tedious to mention.

Migration of Birds.—A year or two ago, happening to be engaged in making a tour in the Mediterranean, and being, on the 21st of April, on board a steam-vessel exactly half way between the Island of Cerigo and Malta, on my way to the latter place, a large number of birds flew on board, evidently performing their annual migration from the coast of Africa. They were principally the common titlark, though among the number were wheatears, a fern owl or two, as well as various swallows; the whole of them seemed much fatigued. Flights of turtle doves passed the ship the whole day; a few alighted for a few minutes in the rigging, but showing no symptoms whatever of exhaustion, and high over head were flocks of vultures or eagles, proceeding as leisurely as rooks of an evening on the way to their roosting-places. Now the distance of the spot I mention from the coast of Africa in two directions is just 240 miles, and, as near as possible, just about as far from the coast of Italy, as well as the Morea. The flight of these birds from land to land, therefore, could not have been less than 480 miles. Many of the titlarks, though in a state of exhaustion, left the ship, to my astonishment, after a rest of an hour or so only, and proceeded on their journey, flying but a few feet apparently from the surface of the water. The weather at this time was beautifully fine. At Malta, a few days after, a friend who had been at sea about the same time informed me that a flight of the small passerine owl had alighted on board his ship; and in the market I observed quantities of these owls, as well as bee-birds, and a number of common cuckoos, which, it appeared, had been caught at night in the quail-nets. How such a bird as a titlark can perform at a stretch such a journey as a sea voyage of 480 miles is one of the facts far beyond our comprehension, but that they do so my statement is surely sufficient ocular demonstration of.—*From the 'Field' of September* 8, 1860.

Suggestions for forming Collections of Birds' Eggs. By ALFRED NEWTON, Esq., M.A., F.L.S., F.Z.S., &c.*

1. *General Remarks.*

THE collecting of bird's eggs for scientific purposes requires far more discrimination than the collecting of specimens in almost any other branch of Natural History. While the botanist, and generally speaking the zoologist, at home, is satisfied as long as he receives the specimens in good condition, with labels attached giving a few concise particulars of when and where they were obtained, it should be always borne in mind that to the oologist such facts, and even the specimens themselves, are of very slight value unless accompanied by a statement of other circumstances which will carry conviction that the species to which the eggs belong has been accurately identified, and the specimens subsequently carefully authenticated. Consequently precision in the identification of his specimens should be the principal object of an egg-collector, to attain which all others must give way. There are perhaps few districts in the world, and certainly no regions of any extent, whose faunas are so well known that the most rigid identification may be dispensed with. Next to identifying his specimens, the most important duty of an egg-collector is to authenticate them by marking them in some manner and on some regular system as will leave no doubt, as long as they exist, of their having been obtained by him, and of the degree of identification to which they were subjected. Neatness in the mode of emptying the shells of their contents and other similar matters are much to be commended; they render the specimens more fitted for the cabinet. But the main points to be attended to, as being those by which science can alone be benefited, are identification and authentication.

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* Reprinted, with additions, from the Circular of the Smithsonian Institution of Washington.

2. *Identification.*

The most satisfactory, and often the simplest, way of identifying the species to which a nest of eggs, when found, belongs, is to obtain one of the parents by shooting, snaring or trapping. But it sometimes, in practice, happens that this is found to be difficult from one cause or another, such as the wary instincts of the birds, or the necessities of his position compelling the traveller to lose no time, or the scarcity of the species making him unwilling to destroy the individuals. In any of these cases there is nothing to be done but to make as careful an examination as circumstances will admit of the precise situation of the nest, the materials of which it is composed (supposing that the collector cannot bring it away with him), and accurately to survey the surrounding locality, to observe by what species it is frequented; all the particulars of which examination and survey should be fully noted down at the earliest opportunity possible. Should, however, either or both the birds be killed, they should be skinned, or at least some characteristic part of each preserved,* and duly labelled to correspond with the inscriptions subsequently put on the eggs, and always with a reference to the collector's journal or note-book, wherein fuller details may be found.

The oologist is especially warned not to be misled by the mere fact of seeing birds around or near the nests. Many of the crow family (*Corvidæ*) are great eaters of eggs, and mistakes are known to have originated from birds of that kind being seen near nests of which they were certainly not the owners. Others, such as the titmice (*Paridæ*), though not plunderers, obtain their food by incessantly seeking it, even in the very localities where many species build. It often happens, also, that two different birds have their nests situated very close to one another; and if they be allied species the collector may be easily deceived. Thus, it has come to the writer's knowledge that the dunlin (*Tringa alpina*) and the purple sandpiper (*Tringa maritima*) have have had their nests only a few feet apart. At first a pair of the latter only were seen, which by their actions betrayed their uneasiness. A short search discovered a nest with four eggs. The observer was one of the best practical oologists then living, and his eye at once saw that it was not the nest which he wanted; but a less experienced man would doubtless have immediately concluded that he had found the eggs of the rarer species. Indeed it may, generally speaking, be said of most birds that whenever they have nests of their own they are also acquainted with those of their neighbours, which by their actions they will often betray to the collector who may be patiently watching them. Birds, again, will occasionally lay their eggs—accidentally, as it were—in the nests of other species, even when they are not, as the Old World cuckoos (*Cuculus*, *Eudynamis* and *Oxylophus*) or the cow blackbird (*Molothrus Pecoris*), of a parasitic nature; thus, eggs of the eider duck (*Somateria mollissima*) have been found in the nest of a gull (*Larus*), and other similar cases are on record, in some of which, from the species being nearly allied, confusion might easily have arisen, though at the time no doubt may have occurred in the collector's mind.

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* Birds may be preserved entire by simply pouring (through a small funnel) a few drops of pyroligneous acid down their throats, and saturating the feathers, especially about the vent, with the same fluid; after leaving them to dry for an hour or so, they may be wrapped in paper and packed. This fact was kindly communicated to me by Mr. John Hancock, and I have since made successful trial of the plan.

It would be impossible in this paper to treat of the various methods which may be successfully employed to obtain the birds to whom a nest belongs, and, in fact, these methods can generally be only learned by experience. It is sufficient to indicate here the use of traps, snares, hingles or bird-lime, in cases where the individuals are too shy to admit of being shot by the gun or rifle. Much may often be gathered by the collector from the practice of the natives, especially if they be savages or half civilized. In like manner it would too much extend these suggestions to give a detailed account of the different ways in which the nests of birds are to be found. The experience of a single season is to most men worth a whole volume that might be written on the subject. Nevertheless, a few hints are given further on, which might not occur to the beginner.

3. *Authentication.*

The most complete method of authenticating eggs is that of writing in ink on their shells,* not only the name of the species to which each belongs, but also, as far as the space will admit, as many particulars relating to the amount of identification to which the specimen was subjected, the locality where, date when, and name of the person by whom they were taken, adding always a reference to the journal or note-book of the collector, wherein fuller details may be given. It is advisable to do this on some regular system, and the following method is suggested as one that has already been found to work well in practice. The scientific names only to be used, except with a mark of doubt or within brackets, when the specimens have really been satisfactorily identified; and if the identification has been made by obtaining one or both of the parent birds a memorandum of the fact to be added, thus: "Both birds snared," "Bird shot," or in smaller space, "Bd. st." If the identification has been effected only by obtaining a good view of the birds the fact should be stated thus: "Bird well seen," Bird seen," or "Bd. sn.," as the case may be. For eggs not taken by the collector himself, but brought in by natives, or persons not having a scientific knowledge of Ornithology, the local name or the name applied by the finder should only be used, unless, indeed, it requires interpretation, when the scientific name may be added, but always within brackets, thus: "Tooglee-aiah (*Squatarola helvetica*)," the necessary particulars relating to the capture and identification being added. Eggs found by the collector and not identified by him, but the origin of which he has reason to think he knows, may be inscribed with the common English name of the species to which he refers them; or if it has no such appellation then the scientific name may be used, but in that case always with a note of interrogation (?) after it, or else the words "Not identified." If the collector prefers it, many of these particulars may be inscribed symbolically or in short hand, but never unless the system used has previously been agreed upon with persons at home, and it be known that they have a key to it. Each specimen should bear an inscription; those from the same nest may be inscribed identically; but different nests, especially of the same or nearly allied species, should never be so marked that confusion can possibly arise. It is desirable to mark temporarily with a pencil each egg as it is obtained; but the permanent inscription, which should always be in ink, should be deferred until after the egg has been emptied. The number terminating the inscription in all cases referring to the entry in the collector's note-book, wherein full details will be found, and the words or letters preceding the number serving to distinguish between different collectors, no two of whom ought to employ the same. The initial letter of the collector's name prefixed to the number will often be sufficient.

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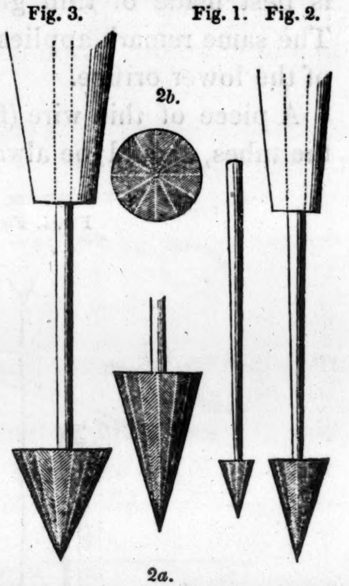
* A few possessors of egg-cabinets have a great aversion to specimens which have been written upon in the manner here recommended. With all deference to their example I cannot yield to what I am compelled to consider a prejudice, and a prejudice which may indirectly lead to very mischievous consequences. The neat and ingeniously-prepared tickets or labels which are used by many persons are not of themselves the slightest guarantee for the authenticity of the specimens to which they are affixed, as the process of removal and substitution is one of the easiest imaginable.

4. *Description of Egg-blowing Implements.*

Figs. 1, 2 and 3 represent "drills" for making neat and circular holes in the shell. These drills should be made of the best steel that can be procured, and of different sizes. Fig. 1 is meant for the smallest eggs, even humming birds', up to those say of a song thrush (*Turdus musicus*). The grooves forming the drilling surface should be cut with a chisel. Fig. 2 will suit the generality of eggs, excepting those of very large birds and sea-fowl, which usually lay eggs with a strong but soft shell. The grooves may be cut either with a chisel or a file, but if with the latter greater care will be requisite in its use. Fig. 3 is intended for the largest eggs, and even some of the smaller ones which have a chalky shell, such as Crotophaga. The grooves are cut with a file. In the manufacture of all these drills the greatest care is necessary that the grooves should lie parallel to one another, and that their edges should be smooth. The smaller the drill the more acute should be the angle it forms at the point. The drills may be fitted with handles or not according to fancy. Those with handles are less likely than the others to cramp the fingers of the performer, an inconvenience which often causes breakages.



Figs. 1, 2, 3, full size. 2*a*, 2*b*, enlarged.

A separate sketch is given with the enlarged views (figs. 2*a*, 2*b*) of the end of a drill,* in order to show more plainly the manner in which the grooves should be cut.

Figs. 4 and 5 represent blowpipes for emptying eggs. They are best made of metal, and for this purpose nickel (or German silver) is preferable, as being less liable to rust. A collector should have two sizes, as a large pipe is not convenient for small eggs, and a small one causes loss of time in blowing large eggs. They should be be made as light as possible, or they may slip from the mouth and break the egg being operated on. The chief point to be attended to in their construction is that the lower orifice should be as large as the size of the pipe permits. It is of course necessary that they should be perfectly smooth outside, towards the lower end.*

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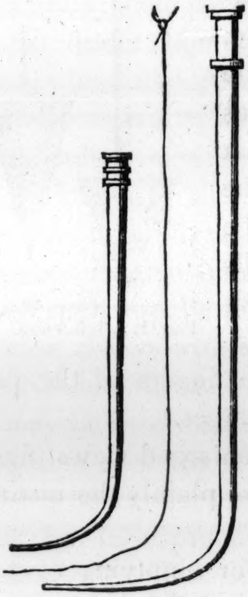
* The great object to be attained is the formation of a circular hole with smooth edges. Collectors not having such a drill as is here recommended will find a common nail or a three-cornered needle a useful substitute, but either must be used with extreme care. A rat-tailed file sharpened to a point at the end is also an effective instrument, as I am kindly informed by the Rev. S. C. Malan, who prefers it to the drill recommended in the text.

Fig. 6 represents a tube for emptying small eggs by suction. The bulb is to receive the contents of the egg and prevent them from reaching the mouth of the operator and thus causing nausea. This instrument is best made of thin glass, as thereby it can be easily kept clean. The same remark applies to this as to the last with respect to the size of the lower orifice.

A piece of thin wire (fig. 7), long enough to pass entirely through the tubes, should be always kept at hand by the operator to remove obstructions which are likely to occur from small pieces of the embryo or half-dried yelk being accidentally drawn into the tubes or blowpipes.

Fig. 4. Fig. 7. Fig. 5.



Half size.

Fig. 8.

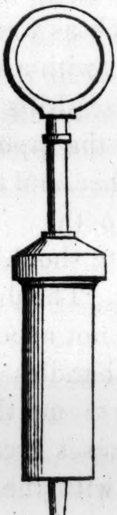
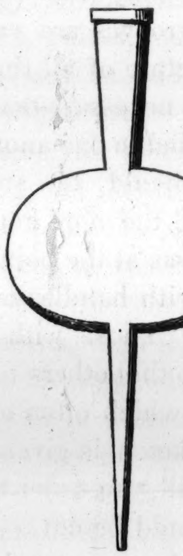


Fig. 6.



Full size.

Fig. 8 represents a syringe, which will be found useful in rinsing out the inside of an egg. It may be made of any metal, though the pewter ones are apt, from their weight, to be clumsy. Nickel is recommended, as for the common blowpipes. The lower orifice should be as large as possible. The ring at the top should be large enough for the insertion of the operator's right thumb — as it must be remembered that he has to work it with one hand.

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* In the absence of a blowpipe, a reed, straw or grass stalk, will be found to be a tolerably efficient substitute.

Figs. 9 and 10 represent scissors of shapes likely to be found very useful; fig. 9. for cutting through the bones of the embryo before it is extracted, and fig. 10 for cutting off portions of it while it is being extracted by one of the hooks represented in figs. 11, 12 and 13, which should vary in size from that of an ordinary pin to that of stout wire. The length of their straight portions should be rather more than the diameter of the egg they are used on.

Fig. 13. Fig. 12. Fig. 14.

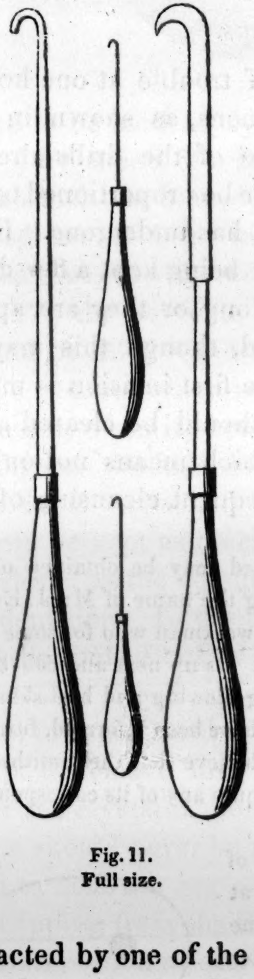

Fig. 11.
Full size.

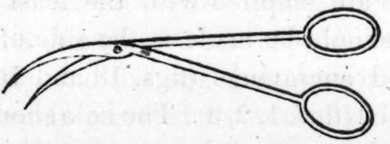

Fig. 10.

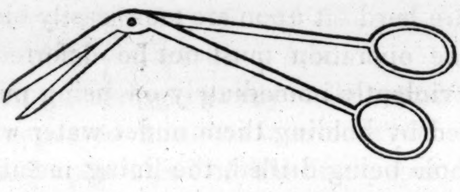

Fig. 9.

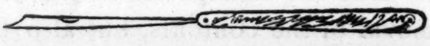

Fig. 15.

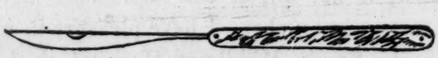

Fig. 16.

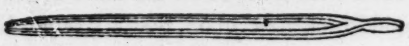

Fig. 17.

Half size.

Fig. 14 represents a knife with a curved blade, somewhat like a billhook, and may be useful in cutting up the embryo prior to extraction.

Figs. 15 and 16 represent a penknife and scalpel with elongated blades or shafts, to admit of their being introduced into the egg to cut up the embryo. Fig. 15 is also, perhaps, the best instrument with which to remove the lining membrane from the hole. This is done by inserting the blade perpendicularly, and slightly scraping the edge of the hole as soon as it is drilled.

Fig. 17 represents a forceps for extracting the pieces of the embryo when cut up. The spring should not be too lively, as its resiliency may occasion breakage. The grasping surfaces should be roughened to prevent the pieces slipping.*

5. *Preparation of Specimens.*

Eggs are emptied with the least amount of trouble at one hole,† which should be made at the side of the specimens, as shown in the annexed engravings (figs. 18 and 19), with one of the drills already described (figs. 1, 2, 3). The hole should of course be proportioned to the size of the egg and the amount of incubation it has undergone. Eggs that are hard sat upon are more easily blown by being kept a few days, but the operation must not be deferred too long or they are apt to burst violently immediately on being punctured, though this may be avoided by holding them under water while the first incision is made. The hole being drilled, the lining membrane should be cleared away from the orifice with a penknife (fig. 15), by which means not only is the removal of the contents, but also the subsequent cleansing of the

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* Most, if not all, of the implements here described may be obtained of any surgical-instrument maker. I have pleasure in mentioning the name of Mr. J. Evrard, of 35, Charles Street, Middlesex Hospital, as that of the workman who for some years past has supplied several of my friends and myself. He fits up neat and convenient pocket-cases with a set of all the most useful tools for egg-blowing and bird-skinning. Mr. David Mackenzie, of 58, South Bridge, Edinburgh, I have been informed, furnishes drills, blowpipes, &c., and at a most reasonable rate. I believe that the Smithsonian Institution of Washington will, with its usual liberality, equip any of its correspondents in America according to their requirements.

† Those who may still prefer to blow eggs by means of two holes are particularly requested not to make them at the ends of the eggs, nor at opposite sides, but on the same side (fig. 20). In this case the hole nearest the smaller end of the egg should be the smallest, and the contents blown out at the other. If the holes are made at the ends of the eggs it not only very much injures their appearance as cabinet specimens, but also prevents their exact dimensions from being ascertained accurately; and if they are made at opposite sides the extent of the "show surface" is thereby lessened.

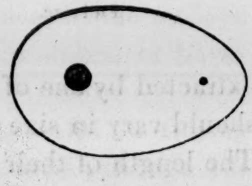


Fig. 20.

specimen, facilitated. The small end of a blowpipe (figs. 4 and 5) should then be introduced, while the other extremity is applied to the mouth, and blown through, at first very gently. If the embryo is found to be moderately developed a stream of water should be introduced by means of a syringe (fig. 8), and the egg then gently shaken, after which the blowpipe may be again resorted to, until by the continued use of both instruments, aided by scissors (figs. 9 and 10), hooks (figs. 11, 12 and 13), knives (figs. 14, 15 and 16), and forceps (fig. 17), the contents are completely emptied. After this the egg should be filled with water from the syringe, gently shaken, and blown out, a process which is to be repeated until its interior is completely cleansed, when it should be laid upon a pad of blotting paper or fine cloth, with the hole downwards, its position on the pad or cloth being occasionally changed until it is perfectly dry. During this time it should be kept as much as possible from the light, especially from the sunshine, as the colours are then more liable to fade than at any subsequent time. In the case of very small eggs, when fresh the contents may be sucked out by means of a bulbed tube (fig. 6), and the interior afterwards rinsed out as before. It is always advisable, as far as possible, to avoid wetting the outside of the shell, as the action of water is apt to remove the "bloom," affect the colour, and in some cases alter the crystallization of the shell; consequently dirt stains or dung spots should never be removed. While emptying the contents it is as well to hold the egg over a basin of water to avoid breakage in case of its slipping from the fingers. Should the yelk of the egg be dried up, a small portion of carbonate of soda may be introduced (but with great care that it does not touch the outer surface of the shell, in which case the colour is likely to be affected), and then the egg filled with water from the syringe, and left to stand a few hours with the hole uppermost, after which the contents are found to be soluble, and are easily removed by the blowpipe, assisted by one of the hooks. It is almost

Fig. 18.

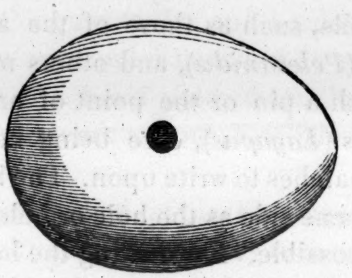
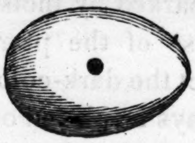


Fig. 19.



unnecessary to add, except for the benefit of beginners, that the manipulation of the different instruments requires extreme caution, but a few trials will give the collector the practice necessary for success. Eggs should never be written on until the shells are perfectly dry, or the ink will be found to run, and the inscription will be rendered illegible. Eggs with chalky shells, such as those of the anis (*Crotophaga*), gannets and cormorants (*Pelecanidæ*), and others may be conveniently marked by incising with a pin or the point of an egg-drill, so also those of the ptarmigans (*Lagopus*), care being taken in this case to select the dark-coloured patches to write upon. The inscriptions should always be placed on the same side as the hole or holes, and confined within the smallest limits possible. For drilling the hole or holes the side presenting the least characteristic markings should be selected.

Eggs that are very hard sat upon, of whatever size they be, should be treated in the following manner, which is a method superior to any other known at present to the writer for preventing injury arising to them. The annexed engraving (fig. 21) shows a piece of paper, a number of which when gummed on to an egg, one over the other, and left to dry, strengthen the shell in such a manner that the instruments above described can be introduced through the aperture in the middle and worked to the best advantage, and thus a fully formed embryo may be cut up, and the pieces extracted through a very moderately sized hole; the number of thicknesses required depends of course greatly upon the size of the egg, the length of time it has been incubated, and the stoutness of the shell and the paper. Five or six is the least number that it is safe to use. Each piece should be left to dry before the next is gummed on. The slits in the margin cause them to set pretty smoothly, which will be found very desirable; the aperture in the middle of each may be cut out first, or the whole series of layers may be drilled through when the hole is made in the egg. For convenience sake the papers may be prepared already gummed, and moistened when put on (in the same way that adhesive postage labels are used). Doubtless patches of linen or cotton cloth would answer equally well. When the operation is over a slight application of water (especially if warm) through the syringe will loosen them so that they can be easily removed, and they can be separated from one another and dried to serve another time. The size represented in the sketch is that suitable for an egg of moderate dimension, such as that of a common fowl.

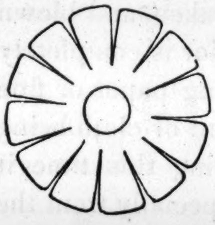


Fig. 21.

The most effectual way of adopting this method of emptying eggs is by using very many layers of thin paper and plenty of thick gum, but this is of course the most tedious; nevertheless it is quite worth the trouble in the case of really rare specimens, and they will be none the worse for operating upon from the delay of a few days, caused by waiting for the gum to dry and harden. The naturalist to whom this method first occurred has found it answer remarkably well in every case that it has been used, from the egg of an eagle to that of a humming bird, and among English oologists it has been generally adopted.

The surest method of packing eggs so as to travel long distances and by rough modes of conveyance without receiving injury is to roll up each specimen separately in tow, flax, wool, or some similar material, so as to form a ball, and then to place these balls side by side in a good stout box, taking care that there be no room for them to shift their position. Those to whom this method may appear too troublesome are recommended first to put a layer of one of the substances just mentioned at the bottom of the box, then a layer of eggs, upon these another layer of packing material, and so on until the box is completely filled. The box should then be shaken, and if any rattling of the contents is heard additional packing material is required. More breakages occur by the use of boxes too large for the number of eggs than the contrary. As a general rule it may be stated that eggs if blown do not break against one another, but against the sides of the box; if unblown, however, their weight renders it necessary to protect them from each other. On the other hand, the surest method of packing eggs so that they may arrive at their journey's end broken is one which, though of course with the contrary intention, has often been recommended, *viz.*, to place them in a box, filling up the interstices between them with bran, sawdust, corn or sand. The effects of this method are in one respect diverse; if the eggs be unblown they will, after sufficient jolting, be found at the bottom, if blown at the top of the box, but in either case the result will be the same, and many be smashed. There is, perhaps, no greater annoyance to an oologist than to receive from a correspondent a lot perhaps of valuable and carefully collected eggs broken through bad packing.

6. *Concluding Observations.*

The best allies of the collector are the residents in the country, whether aboriginal or settlers, and with them he should always endeavour to cultivate a close intimacy, which may be assisted by the offer of small rewards for the discovery of nests or eggs. He should, however, always insist upon any nests found being shown to him *in situ*, and the gratuities paid should be proportioned to his success in identifying the species to which they belong. He should steadily refuse any but the most trifling remuneration for nests or eggs taken and brought to him. As a rule the eggs of the different species of plovers and sandpipers (*Charadriadæ* and *Scolopacidæ*) are those most wanted by oologists of all countries. These birds mostly breed in high northern latitudes, but they often choose elevated spots for nesting in more southern parallels. Their nests are nearly always difficult to find, even when the birds are discovered. Their habit is, if the ground be at all rough with herbage, to run off the nest for some distance before taking wing as the observer approaches; if the ground be bare they will try to escape observation by squatting closely until they are almost trodden upon. The best method of finding them, and indeed the nests of some other species, is for the collector to conceal himself near the place where he has reason to believe the eggs are, and to endeavour to watch the bird as she returns to her nest—using a telescope if necessary; but should this fail, after giving her time to settle herself upon it, to fire off a gun suddenly, or spring up and shout, when the bird, in her surprise, will often at once take wing from the nest, or at least without running many yards. To reach the nests of rock-building birds a man or boy can be lowered by a rope from the top, when it is accessible. The rope should always be tied under the arms of the person lowered, as substances, detached from above by the friction of the rope, may, by falling on him, stun him for a moment, and cause him to lose his hold. But in all places and at all times an egg-collector should recollect that identification and authentication are his main objects, to attain which no trouble is too laborious, no care too great.

It does not come within the scope of this paper to offer any remarks on the arrangement or method of exhibiting eggs in cabinets. What has been attempted is simply a series of suggestions for collectors in the field. They are especially urged to aid the study of Oology by exercising greater zeal than many have hitherto been wont to do in seeking and recording precise information relative to the specimens they procure, and that at the very time and place when only it may be sought and recorded. It follows of necessity that such information should not be neglected by oologists at home, but carefully entered and preserved in the catalogues of their collections, which all oologists ought to keep. In many cases they may prefer forming these catalogues on their own plan; indeed for general collections of eggs they are obliged so to do; but to those who are content with a moderate series of the eggs of British birds only, the useful 'Systematic Catalogue'* of the Rev. S. C. Malan will be found of very great convenience, though the plan recommended by that gentleman, of using tickets to distinguish the specimens instead of writing in ink on their shells, appears to the author, as has been stated above, to be liable to many grave objections. But with the simple substitution of inscriptions for tickets (which are so easily removable) Mr. Malan's method seems deserving of very great commendation, for it is the comparative indelibility of the former which gives them so great an advantage over the latter as permanent records of identification and authentication.

ALFRED NEWTON.

Elveden, Thetford,
July 11, 1860.

Instinct of the Common Partridge.—This season a pair of the common partridge selected the following extraordinary position for a place of incubation,—*i. e.* the top of an old barrel in a yard, at a considerable distance from a field, at Trumpington, Cambridgeshire, where six or seven chicks were duly hatched. Surely this may justly be termed instinct, for no other cause can be assigned than an instinctive foreboding in the parental birds of an approaching season that was likely to prove disastrous to its eggs and young, and has not the past almost unprecedented wet weather proved so, to our cost? Never having met with a similar instinctive propensity in the partridge, I have ventured to send this note for insertion in the 'Zoologist.'—*S. P. Saville; Jesus Terrace, Cambridge.*

Toads waiting for Moths attracted by Sugar.—There is a tree standing by the side of a ditch in the fens, which leans in, three feet and a half from the ground, two inches out of the perpendicular; there is a small hollow place in the stem, one inch deep and two inches wide, all the way from the ground growing wider upwards till it is lost. On this tree, three feet and a half from the ground, I sugar for insects, and several nights a large toad has ascended the tree to the sugar: it always sits quietly on the stem, and I never find it on any other tree, although there are several other trees, all ash. I believe its object is to take the insects that come to the sugar. I have called the men at the railway bridge, which crosses the river near the spot, to see it, and one of the men and his wife saw it the other night, and took it down, but in less than half an hour it was there again; other persons have also seen it; and whenever I sugar the tree it is almost sure to be there. Strange as this may seem, I cannot find any other fact about it, although I have paid a deal of attention to the subject. I never find any insects on the tree if the toad is there. Has any other person met with a similar occurrence?—*William Winter; Aldeby, near Beccles, August* 22, 1860.

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* 'A Systematic Catalogue of the Eggs of British Birds,' arranged with a view to supersede the use of labels for eggs, by the Rev. S. C. Malan, M.A. London: John Van Voorst, 1, Paternoster Row. 1848. 8vo, pp. 170. Price 8*s.* 6*d*.

[The fact of toads waiting at the foot of a sugared tree for the moths that may happen to fall off in a fit of intoxication has long been familiar to me; but I do not recollect a previous record of a toad climbing a tree with this object. The conjecture that the toads are attracted by the saccharine droppings has been hazarded, but is quite untenable; so is also the idea that Cossus ligniperda frequents the sugared willows for the sake of the sweets: beginners are very often led into this second mistake by seeing the female goat moths clinging to the bark, and depositing their eggs: if these young gentlemen would examine the mouth of the goat moth they would find no honey-sucking apparatus; and in her tubular ovipositor, thrust deep into the crevices of the bark, they would discover the real object of her visits to the willow-bark.—*Edward Newman.*]

Capture of a Sturgeon in Fresh Water.—It having been rumoured for some time past that a large fish was daily to be seen in the river at Hemingford-Grey, Huntingdonshire, a party of the lovers of aquatic sport set out in right good earnest to capture the talked-of monster, or for ever set at rest the story of the large fish in the pits of Hemingford Mills. The expedition succeeded, and a large sturgeon (*Acipenser sturio*) was taken, after some trouble and manœuvring in landing, on the 21st of August, 1860. I annex its exact dimensions, &c.:—length, 7 feet; in girth, 3 feet; weight, 112 lbs. The fish was particularly rich in colouring, and presented a very fresh appearance.—*S. P. Saville; Jesus Terrace, Cambridge.*

The Mollusca of the Firth of Clyde. By the Rev. ALFRED MERLE NORMAN, M.A.

(Continued from p. 5887.)

(I much regret that so long a time has elapsed since the publication of the preceding portions of the paper. In removing from Leicestershire to my present residence some of the MSS. were mislaid, and have only recently been found.

Since the former parts were printed the results obtained by the Dredging Committee of Lamlash Bay, consisting of Dr. Greville, Rev. C. P. Miles and others, have been published in the 'Report of the British Association for the Advancement of Science for 1856.'

To this report it will be known that I refer when I attach the names "Greville and Miles" to any locality or note. The Committee again pursued their investigations in 1857, and during the autumn of that year I was myself at Lamlash for a few days' dredging, and had the pleasure of meeting Professor Balfour, the only member of the Committee then left upon the island.)

Class III. PTEROPODA.

Fam. II. *Limacinidæ.*

Spirialis Flemingii (*Fusus retroversus, Peracle Flemingii, Crania Flemingii?* misprint). Mentioned by Dr. Landsborough as found at Lamlash.

Class IV. GASTEROPODA.

Div. I. PROSOBRANCHIATA.

Fam. I. *Chitonidæ.*

Chiton fascicularis. Under stones at extreme low-water mark in Balloch Bay, Cumbrae, and at the outer Allans, also at Lamlash.

C. ruber. Uncommon; occasionally dredged attached to stones near Tan Buoy, Cumbrae, and between Clachland Point and Holy Island. Ayr, *Smith.*

C. cinereus (*Chiton marginatus, Chiton fuscus*). Abundant under stones between tide-marks, but not richly coloured; large specimens may be taken at the northern extremity of Fintry Bay, Cumbrae.

C. Asellus (*Chiton cinereus?*). Abundant in deep water attached to shells and stones. Full-grown specimens from the Clyde are always clothed with a black incrustation.

B. lævis. Rare, and always small, not much exceeding half an inch. I have taken it at low water, and with the dredge down to twenty fathoms.

C. marmoreus (*Chiton lævigatus*). Bute, *Smith.* Occasionally off the Tan Buoy, Cumbrae, and also within and outside Lamlash Bay. Mr. Alder's cabinet contains a fine series from Rothesay Bay.

Fam. II. *Patellidæ.*

Patella athletica. Mentioned by Dr. Landsborough. I have not met with it.

*P. vulgata. Common, of course, but not so abundant as usual. A pretty variety is found at Scolag, in Bute, low-spired and strongly ribbed. This is a form that I have never observed elsewhere. It will be found to be a general rule with regard to the limpet, that the nearer high-water mark the shell is taken, the higher spired, more strongly ribbed and smaller it will be; and that the lower down it lives, the flatter, less ribbed and larger it becomes. The above-mentioned form, which has the flat skin of the low-water variety, with the strong ribs of the high-water form, was found just beyond low-water mark.

*P. pellucida (*Patella cærulea*). Not uncommon on Laminariæ, but the specimens are always small.

Acmæa testudinalis (*Lottia testudinalis, Patella testudinalis, Patella Clealandi*). Few British shells can compete with this limpet in beauty. In the Clyde it is very abundant, though somewhat locally so. The kind of locality in which it should be looked for is among beds of large stones, when laid bare at the lowest spring tides; it rarely occurs except on detached pieces of rock. On the Bute shore, from Scolag round to Rothesay, it may be taken in great abundance. Varieties occasionally are of an uniform dark brown, while others are nearly pure white. Acmæa testudinalis is a peculiarly interesting mollusk, on account of its steady migration southwards. This fact is noticed by Forbes and Hanley, who trace its wanderings down the western coast from Scotland to Bangor, in Ireland, and, at a subsequent period, as far south as Dublin and the Isle of Man. At that time it was not known in the east of Scotland nor anywhere on the shores of England. A little later, however, it was met with in great abundance on the shores of the Moray Firth; in 1856 it was noticed in the Faroe Islands, Northumberland, by Mr. Tate, and at Whitburn, in Durham, by the Rev. G. C. Abbes; and in 1857 Mr. Albany Hancock fell in with it at Roker, yet further south on the coast of Durham. We have a strong proof that the species has only recently arrived at the last-named localities, in the fact that it has occurred in spots which have been thoroughly explored by Dr. Johnston, Mr. Alder, Mr. Hancock and other well-known naturalists, whose keen eyes could not have overlooked so conspicuous a shell. We shall probably hear before long that it has put in an appearance at Whitby or at Scarborough.

*A. virginea (*Lottia virginea, Patella virginea*). On stones and at roots of Laminariæ from low-water mark to twelve fathoms; common.

Pilidium fulvum (*Patella Forbesii, Patella fulva, Pilidium rubrum*). "This mollusk was first announced as a member of the British Fauna by Mr. Smith, of Jordan Hill, who dredged it in the Clyde, off Arran." —*F. & H.* In one confined spot just outside Lamlash Bay, a little to the south-east of Clachland Point, this beautiful little shell may be met with in some abundance. If the right ground be hit upon, the dredge will come up filled with stones, mixed with perfectly black and thoroughly rotten shells of Pecten opercularis. If the dredger succeeds in finding this ground, he will be upon the most productive spot in the whole district of the Firth of Clyde. The careful examination of the stones and Pecten shells from this locality has given me, among many others, the following shells, several of which do not occur elsewhere in the district:—Astarte sulcata, Pecten tigrinus, P. striatus and P. similis, Terebratula Caput-Serpentis, Crania anomala, Pilidium fulvum, Puncturella noachina, Bulla Cranchii, Mangelia septangularis and P. teres, Trichotropis borealis, &c. Varieties of the Pilidium sometimes occur, having a pale ground marked with brilliant orange rays, while others, which are very rare, are wholly yellowish white.

Propilidium alcyloide (*Patella alcyloides*) is another of the shells originally described as British from the Clyde. It "was added," write Forbes and Hanley, "to the British Fauna by Mr. Smith, of Jordan Hill, and one of the authors of this work, when dredging in Lamlash Bay, in 1839." "Two specimens, dredged alive off Ballantrae, Ayrshire, in 1842, were sent me by Mr. Edward Getty. Dead shells are not uncommon among comminuted nullipores dredged in Lamlash Bay, Arran, in 1846, by Major Martin and the Rev. David Landsborough," *W. Thompson*. Notwithstanding this assertion that it is "not uncommon" I have never had the good fortune to meet with the species, although I have examined bushels of "comminuted nullipores" from the little Bay, now known to the boatmen as "Landsborough's Bay," on account of Dr. Landsborough having so frequently dredged there for this comminuted nullipore, which abounds in minute shells, many of them very rare species. Unfortunately the specimens are for the most part very much worn, and of little value for the cabinet.

Fam. III. *Dentaliadæ.*

Dentalium entalis. May be found in most suitable situations,—namely where the water is deep and the bottom mud. Abundant outside Kames Bay, Cumbrae.

Fam. IV. *Calyptræadæ.*

Pileopsis hungaricus (*Capulus hungaricus*). Not common, and always small. Its range is from low water to twenty fathoms.

Fam. V. *Fissurellidæ.*

*Fissurella reticulata (*Fissurella Græca*). Bute, *Smith.* Between Holy Island and Clachland Point, *Greville and Miles.*

Puncturella noachina (*Cemoria Flemingii, Fissurella noachina*). Abundant in company with Pilidium fulvum, to the note on which species I beg to refer. It has likewise occurred to me off the west of Cumbrae. Bute, *Smith.* Mr. Smith was the first to record this species as living on our coasts.

Emarginula reticulata (*Emarginula fissura*). Common on shells and stones in the coralline zone.

E. crassa. Has been taken by Mr. Barlee in Loch Long, *Forbes and Hanley.*

Fam. VI. *Trochidæ.*

Trochus zizyphinus. Not very common.

T. alabastrum. "Lamlash Bay, dredged by Mr. Eyton," *Greville and Miles.* Surely there must be some error?

T. millegranus (*Trochus Martini*). Frequent among nullipore in the Laminarian and Coralline zones. Specimens in good condition are comparatively scarce, as its sculptured surface renders it peculiarly liable to be incrusted with Balani, Serpulæ, &c.

T. exiguus (*Trochus interruptus*). Ayr, *Smith.* Perhaps from ballast, or T. Montagui may have been mistaken for it, as that species is not mentioned in Mr. Smith's list.

T. Montagui (*Trochus Montacuti*). One specimen taken off Cumbrae is all that has occurred to me. Dr. Landsborough records it as found at Lamlash.

T. tumidus. Common.

*T. cinerarius (*Trochus perforatus*). Abundant.

T. umbilicatus. Common.

T. magus. Not common. The Clyde specimens, though frequently very large, are always very dull in colouring, indeed generally destitute of all painting.

*T. crassus. Cumbrae, *Smith.* There must surely have been some mistake in the admission of this species; probably the specimen found was from ballast.

T. undulatus. Recorded as found at Lamlash by Dr. Landsborough.

T. helicinus (*Margarita communis, Margarita vulgaris*). Frequent at low water; the Allans, Cumbrae and Lamlash Bay; also taken with the dredge on fronds of Laminariæ.

T. pusillus. Common in Lamlash Bay, more particularly in that part known as "Landsborough's Bay."

Adeorbis subcarinatus (*Trochus subcarinatus*). Among shell-sand from Lamlash Bay.

Fam. VII. *Ianthinidæ.*

Ianthina communis. Is mentioned by Mr. Smith as having been taken at Loch Ryan. Loch Ryan is a little to the south of the district which this paper includes, but as the Ianthina is an oceanic shell there is no reason why a "west-sou'-wester" may not waft it from the Atlantic to the Ayrshire coast.

Fam. VIII. *Littorinidæ.*

*Littorina neritoides (*Littorina petræa; Turbo neritoides*). Local, but not uncommon, and may be met with in some abundance on the rocks of the outer Allans, Cumbrae.

*L. rudis (*Littorina vulgaris, Turbo rudis* and *T. rugosus*). Common.

L. patula. Local. On the rocks at Callums Hole, Bute, and at the Corriegills, Arran.

L. tenebrosa. In little pools in the salt marsh at Brodick.

L. saxatilis (*Littorina neglecta*). Plentiful in company with L. neritoides at Allans, Cumbrae; also in rock pools at Clachland Point, Arran.

*L. littorea (*Turbo littoreus*). Common.

*L. littoralis. Common.

Lacuna pallidula (*Natica pallidula*). Rock pools, Cumbrae, not common; Lamlash, Ayr, *Smith*.

L. puteolus. Frequent in a large rock pool at the outer Allans, Cumbrae. The strata of the Allans dip towards the sea. The sea has worn away the softer material between two upturned outcropping layers that raise themselves out of the sea, presenting their smooth, sloping, and steep-inclined surfaces to the sea, and their broken and rugged summits to the land. The channel thus worn away between the two strata forms a large rock pool, the bottom of which is never disturbed even in the heaviest seas. The water finds its way in and out of this rock pool by narrow channels passing between the loose piled-up stones which close the entrance at either end. At the lowest spring-tides, perhaps two or three times a year, this rock pool is left entirely dry, but at ordinary spring-tides water remains in it to the depth of two or three feet. At such times the conchologist may reap a perfect harvest. He should go provided with a bucket and a man or boy; the boy should be sent into the water to gather the weeds, while the conchologist himself washes them in the bucket; the sediment should then be taken home, dried, sifted, and examined at leisure; the stones of the rock pool and the stones within it should also be carefully examined. Among the shells taken in this rock pool, I may mention the present species and the two other members of this genus, Cerethium reticulatum and C. adversum, Rissoa rufilabrum, R. punctura and R. inconspicua, Jeffreysia opalina and J. diaphana, Acmæa testudinalis and A. virginea, Eulenia distorta, Trochus helicinus, Odostomia eulimoides, O. turrita and O. spiralis, Chemnitzia indistincta, Amphisphyra hyalina, &c.

*L. vincta (*Lacuna canalis* and *L. quadrifasciata*, *Turbo vinctus* and *T. quadrifasciatus*). In rock pools and on Laminariæ, not uncommon, but generally small.

Rissoa striatula (*Rissoa decussata*, *Pyramis striatulus*, *Cingula striatula*). Cumbrae, *Smith.* Rare among Lamlash Bay shell-sand.

R. crenulata (*Rissoa Cimex*, *Cingula Cimex*). Ayr, *Smith*; Lamlash, *Landsborough.* I have never met with it in the Clyde, but have received it from the Turbot bank, off the Antrim coast, so that it may be expected in the Clyde.

R. zetlandica. Lamlash, *Landsborough.*

R. Calathus (*Cingula calathisca*). Cingula calathisca is included in Mr. Smith's Catalogue as found at Cumbrae; Lamlash, *Landsborough.*

R. Beanii. Not uncommon among shell-sand from "Landsborough's Bay," but in a worn state. In a living state it is very rare.

R. abyssicola? Dr. Landsborough mentions with doubt a specimen of this beautiful Rissoa as having been taken at Cumbrae (*Lands. Excur.* p. 443). It is met with in Loch Tyne.

R. punctura (*Cingula punctura*, *Rissoa reticulata*). Abundant dead in Lamlash Bay, and alive in the large rock pool at the Allans, Cumbrae; Ayr, *Smith.*

R. costata (*Cingula costata*). Not common. A few dead specimens dredged at Lamlash; Ayr, Bute, *Smith.*

R. striata (*Rissoa minutissima*, *Turbo striatus*). Abundant.

R. parva (*Rissoa alba, Cingula parva*). Abundant. *Var*. R. interrupta, abundant. Peculiarly characteristic specimens are to be found in rock pools at Farland Point, Cumbrae.

R. costulata. Lamlash, *Landsborough*.

R. rufilabrum. Abundant on Zostera marina growing in the large rock pool on the Allans, Cumbrae; and also found, though less commonly, in similar situations at Lamlash, and probably throughout the district.

R. labiosa (*Turbo labiosus, Cingula labiata*). A few examples dredged in Kames Bay, Cumbrae. A large fragile form, abundant on the large Zostera beds near the Pier at Lamlash; Bute, Ayr; *Smith*.

R. inconspicua. Frequent dead and worn in Lamlash Bay. Occasionally found also alive on decaying Laminariæ and in rock pools.

R. tenuis (*Alder*). Mr. Alder is still firm in the conviction that the Rissoa inconspicua, *var*. c. of Forbes and Hanley, is a distinct species. The shell was first taken by him "at and a little below low water-mark at Rothesay," and he has since received it from Shetland.

R. Goodallii (*Alder, MS.*). I found a small Rissoa in company with R. rufilabrum at the outer Allans, which is referred by Messrs. Hanley and Jeffreys to R. inconspicua, of which species they consider it a dwarf form. Mr. Alder thinks it may be distinct, but adds "I should like to see the animal before making up my mind. The shell does not show any of the delicate markings usually found on R. inconspicua. The manuscript name of Goodallii in my cabinet was attached to them because I got the first specimens from Bean, who had received them from Dr. Goodall under the name of Turbo vittatus (a synonym of T. cingellus), and knowing they did not belong to that species, I attached the Doctor's name to them for distinction's sake."—*Alder in litt*. To this observation of Mr. Alder, I may add that I have myself seen this shell in cabinets erroneously labelled "Rissoa vittata."

R. semistriata. Lamlash, *Landsborough*.

R. cingellus (*Rissoa vittata, Turbo cingellus*). Not uncommon under stones near low water at many places in the district.

R. vitrea (*Turbo vitreus*). Lamlash, *Landsborough*; Ayr, *Smith*.

R. fulgida. I have procured a specimen or two in Kames Bay, Cumbrae, and also found the species at Lamlash.

R. rubra. Included in Dr. Landsborough's latest revised Catalogue of the Lamlash Bay Mollusca.

R. soluta. Mr. Webster has met with this species among some shell-sand I sent him from Lamlash Bay, and Dr. Landsborough and Mr. Bean had previously recorded it from the same locality. Bute, *Bean.*

*R. Ulvæ (*Cingula subumbilicata*). Common in the salt-water marsh at Brodick. Examples taken there are commonly of a very curious form. The whorls of the young shell are remarkably small; they then suddenly enlarge, and ultimately the small whorls of the upper portion of the spire drop off, leaving an obtusely truncated apex, as in the genus Truncatella.

Jeffreysia opalina. Confined, as far as my observations go, to the Allans rock pool, where it is abundant, but always small.

J. diaphana. In company with the last, and equally common in that locality, but has not been met with elsewhere in the district.

Skenea Planorbis (*Skenea depressa*). Very abundant.

S. nitidissima. Frequent. Alive in rock pools at Clachland Point, Arran; and dead in dredged Lamlash Bay sand.

S. Rota. Rare in sand from "Landsborough's Bay."

S. divisa. Frequent in the same locality as the last.

S. costulata. There is a specimen of this shell, which I have seen, in the cabinet of Mr. Bean, who procured it from Lamlash Bay sand. The genus Skenea in the 'British Mollusca' contains a motley assemblage of minute shells which had since proved to belong to widely different genera, and, which, indeed, were only provisionally placed by Forbes and Hanley together. Jeffreys and Messrs. Adams (in their 'Genera of Recent Mollusca') would retain Planorbis as the sole representative of the genus Skenea; Messrs. Adams deposit the remaining species in the genus Cyclostrema, *Marryatt*, among the Trochidæ, while Jeffreys places Culteriana, costulata (?), lævis (?) and divisa in Margarita, among the Trochidæ, and has constituted a genus Omalogyra for the reception of nitidissima and Rota: he leaves this genus among the Littorinidæ. Clark unites Planorbis to the genus Rissoa, places Culteriana, divisa, costulata and lævis in Trochus, nitidissima in Truncatella, and "believes" that Rota is the young of Cæcum Trachea. The utmost that can as yet be considered satisfactorily determined is that Planorbis should remain in the family as it is, and that Culteriana and divisa must be removed to the Trochidæ; all the rest is conjecture, or at least has no sufficient proof.

Fam. IX. *Turritellidæ.*

*Turritella communis (*Turritella Terebra*). Not common.

Cæcum glabrum (*Brochus glaber, B. arcuatus*). Alive in rock pools, Allans, Cumbrae; and Clachland Point, Arran. Common among the shell-sand of Lamlash Bay. Bute, *Smith.*

C. Trachea (*Brochus striatus, Dentalium Trachea, D. imperforatus*). Frequent in dredged shell-sand.

Fam. X. *Cerethiadæ.*

Aporrhais Pes-Pelecani (*Rostellaria Pes-Pelecani*). Frequent.

*Cerethium adversum (*Terebra perversa, Murex adversus*). Alive in rock pools, rare. Dead in Lamlash Bay shell-sand, frequent.

*C. reticulatum (*Buccinum reticulatum, Murex reticulatus*). Extremely common. The most abundant shell in the district.

Fam. XI. *Scalariadæ.*

Scalaria communis (*Scalaria elathrus*). I have procured through fishermen two or three specimens which were dredged in Lamlash Bay, where Dr. Landsborough has also taken it. Mr. Hennedy has met with the species at Gourock.—('*The Naturalist,*' 1852, vol. ii. p. 88).

S. Turtonis. Once dredged alive between the Corriegills and Clachland Point, Arran. Ayr, Bute, *Smith.*

Fam. XII. *Pyramidellidæ.*

Adis nitidissima (*Turritella nitidissima*). One example dredged close to the Clerk Rock, Isle of Cumbrae. Lamlash, *Landsborouyh.*

A. unica (*Turritella unica*). Lamlash, *Landsborough.*

Eulima polita. Occasionally taken throughout the district, but rare.

E. nitida, *Philippi.* Lamlash Bay, rare.

E. bilineata (*Eulima subulata*). Lamlash, *Landsborough.*

E. distorta. Not uncommon in rock pools and by washing seaweeds dredged in the Laminarian zone; also dead in Lamlash Bay shell-sand. A strongly marked, much elongated, straight and larger variety of this shell from the "Clyde district" is distinguished by Forbes and Hanley under the name of gracilis. I have procured it abundantly from off Tarbert in Loch Fyne, but have not met with it in the Firth of Clyde.

Chemnitzia rufescens. This is probably specifically identical with C. scalaris, scalaris being the southern and rufescens the more usual northern form of the same shell. Chemnitzia rufescens "is a rare animal, occurring occasionally and sparingly in the Lochs of the Firth of Clyde."—*Forbes and Hanley.* I have taken it in Lamlash Bay.

C. indistincta. Not uncommon alive in rock pools; also taken with the dredge off Fintry Bay, Cumbrae; and in shell-sand from "Landsborough's Bay."

C. clathrata. The Parthenia clathrata of Jeffreys is included by Dr. Landsborough among the Lamlash shells. I do not know what shell Dr. Landsborough can refer to under that name. The specimen of C. clathrata in my friend Mr. Jeffreys' cabinet still remains, I believe, unique as British.

C. eximia. Mr. Bean discovered among Lamlash shell-sand a shell which he referred with doubt to Rissoa Balliæ of Jeffreys, which is synonymous with Chemnitzia eximia (*vide* Lands. Excur. Arran. p. 363). Subsequent observation has not confirmed this surmise.

Odostomia conoidea. Lamlash, *Landsborough.*

O. unidentata. Common in Lamlash Bay shell-sand, and I have likewise taken it alive.

O. plicata (*Turbo plicatus*). Bute, *Smith.*

O. turrita, *Jeffreys.* Alive in rock pools at the outer Allans, Cumbrae, and Clachland Point, Arran; and dead in shell-sand in Lamlash Bay. Perhaps this is the shell which Mr. Smith took at Bute, and recorded as Turbo plicatus. I have not yet met with that species in the district.

O. eulimoides. Frequent on the wings of Pecten opercularis, dredged on the bank near the Tan Buoy, Cumbrae. The Pectens are covered with an encrusting red sponge, which Dr. Bowerbank will describe in his Monograph about to be published by the Ray Society under the name of Halichondria favinaria. The Odostomiæ appear to feed upon this sponge.

O. eulimoides, *var. b, Jeffreys* (*Turbo pallidus*, Mont.). This well-marked form is frequently found among Lamlash sand.

O. rissoides. Occasionally alive in rock pools, and dead in shell-sand, but generally small.

O. albella (*Lover*). Alive among coralline in rock pools at Clachland Point. This would certainly seem more distinct from O. rissoides than many other described species.

O. cylindrica. Occasional. One large specimen from Lamlash shell-sand I was inclined to think might be distinct, but Mr. Jeffreys refers it here.

O. interstincta. Not uncommonly taken in rock pools, and with the dredge. The Odostomia costata of Bean, which he took in Lamlash Bay, is merely an elongated form of this species.

O. spiralis. Alive in rock pools at Cumbrae. Dredged off Fintry Bay, and near the Clerk Rock, Cumbrae. Dead in Lamlash shell-sand. Odostomia ornata is a MS. name given by Mr. Bean to a variety of O. spiralis, in which the spiral line at the base is obsolete. It is taken among Lamlash Bay shell-sand.

O. decussata. Frequent among the comminuted nullipore of "Landsborough's Bay," which I have so frequently spoken of in this paper as "shell-sand." A very large portion of the "sand" consists of minute shells and the broken fragments of their larger brethren. Odostomia decussata is now and then found alive, but is far more frequent in a dead and worn state.

O. excavata (*Rissoa Harveyi*, Thompson, *Parthenia turrita*). Dead specimens rare among Lamlash Bay shell-sand. I have never met with it alive.

Eulimella Scillæ. Said by Forbes and Hanley to occur "throughout the Clyde district." I have procured it from off Tarbert on Loch Fyne, but have not met with it in the Firth of Clyde.

Truncatella Montagui (*Turbo subtruncatus*). Turbo subtruncatus is reported by Mr. Smith to have occurred at Ayr. It is hardly likely to be met with alive so far north. The specimens were probably from ballast.

Otina Otis. I found a specimen of this shell among washed weed from Clachland Point, Arran. This is, I believe, the most northern locality in which this species has been found. Professor Forbes met with it in the Isle of Man. Dr. Gray has removed the genus Otina, apparently on good grounds, from its position here, and has associated it with the Auriculadæ.

ALFRED MERLE NORMAN.

Sedgefield, Ferry Hill,
September 4, 1860.

(To be continued).

On the Habits of the Argonaut.—Any original observations on the habits of so interesting a mollusk as the argonaut should be welcome to the zoologist. Such I consider are those made by my friend, Mr. Thomas Kerr, of New Zealand. On the occasion of his making a voyage across the North Pacific, one hundred and fifty miles north of the great bay on the north side of New Guinea, he took a living argonaut in the towing-net. The rest he shall tell himself: "I put it," says he, "into a tumbler of water to observe its motions at leisure, but, to my surprise, it was instantly out of the shell and darting with great rapidity round and round the glass in the usual cuttle-like manner—stern first; it finally rested on the side of the tumbler, emitting a current of water from its swimming tube, and sinking to the bottom was soon dead. I several times placed it in the shell, but it never remained. While swimming it assumed a rich deep brown colour, which, while at rest, only remained as eye-like spots all over the body. Sepia was expelled from an interior tube protruded between the mantle and the base of the swimming-tube. The shell, containing ova, appeared of the same specific gravity as water, for it rested wherever it was placed. The 'Zoe' I presume is the male organ; it moved about with a writhing motion, the lower disk being apparently surrounded by suckers; both it and the eggs possessed the eye-like spots and the power of changing them." My friend forwarded me the specimens in a bottle of alcohol, but unfortunately they never reached me. We were very far apart, and the "Ocean Parcels Delivery Company" I believe is not yet in existence. The account, however, confirms some observations I made during a former voyage concerning the facility with which the argonaut quits her shell, and the presence of the parasitic male is highly important as proving the sex of the shell-constructing individuals. My friend, Mr. Kerr, was, I believe, unacquainted with my observations.—*Arthur Adams; Olga Bay, Manchuria, August* 3, 1859.

On the Capture of Telmessus serratus in Manchuria.—I land as usual with the "seining party," for, besides the exciting pleasure of catching good fish, there is a chance of securing something interesting to the naturalist, but not fit for the "pot." We choose a shallow sandy bay full of "tangle," and where a little rivulet runs into the sea, for in such localities do the salmon love to congregate. It is evening, and the poor Chinese fishermen have hauled their canoes high up upon the beach. They have lighted their wood fires, and are peacefully employed, some smoking, and others preparing the supper of fish. Huge rocks crowned with trees, dark and solemn in the twilight, form the back ground, and already the fireflies have commenced their intermittent illumination. The seine is taken out in the "jolly boat," and forms a vast semicircle in the water, and the sailors are scattered through the bush cutting down trees and making huge fires to attract the fish. Soon parties in long boots and in bare legs assemble at either end of the seine, and singing songs, if not select, yet cheery, commence hauling in the net. Glittering scales and silvery bellies soon show themselves above the water, and as the seine is landed, amid great excitement, a tumbling, leaping mass of fish is thrown upon the sand. "Here's a kinger" cry the sailors as they "fist" a noble salmon. "Only a toader" cries another, casting high up among the bushes an ugly brown Tetraodon. "Here's an *adjective* big turbot" says a short man with a rubicund proboscis; and "Here's shrimp sauce for the turbot" says a long pale boy, with a squint in his eye, picking up prawns three inches long; and "Here," sings out another of the jovial crew, "is a curio for the Doctor." With that a hairy man of the sea brings me a large yellow somewhat apathetic crab with "Please, sir, is this any good; I never seen another like 'im," and I thank him courteously, and take possession of a splendid, perfect, living specimen of my friend Adam White's Telmessus serratus.—*Arthur Adams; Olga Bay, Manchuria, August* 3, 1859.

Capture of Gonepteryx Rhamni, var. *Cleopatra.*—I have to announce the capture of that remarkable variety of Gonepteryx Rhamni called Cleopatra: it was taken by my uncle, Mr. John Fullerton, in his grounds at Thrybergh Park, near Rotherham, on the 27th of June, in this year. The fore wings are much more suffused with orange than those of the specimen which Mr. Curtis figured, and the specimen resembles exactly the Italian specimen of Cleopatra in Mr. Hope's collection.—*H. Adair Pickard; Christ Church, Oxford, August* 27, 1860.—*From the 'Intelligencer.'*

Description of the Larva of Acidalia inornata.—Full-fed larva rigid, rugose; body rich dark chocolate-brown, intersectional bands grayish, with a light spot in the centre; head slightly bifid, with two raised white spots at the back; dorsal and subdorsal lines light and distinct on the first four segments, interrupted to the ninth; dorsal lozenges on the middle segments indicated by a dark outline, half of the last lozenge and hinder segments light brown, with a broad dark line running down the centre; belly gray. This larva hybernates, and will feed on Polygonum aviculare, P. Hydropiper, a species of Galium, Cerastium arvense, &c.—*James Batty; 133, South Street, Park, Sheffield, August* 20, 1860.—*Id.*

Description of the Larva of Eupithecia satyrata.—

Var. 1. Ground-colour pale yellowish green, segmental divisions yellow. Central dorsal line dusky green. Down the centre of the back a series of Y-shaped dusky green blotches, edged with purplish brown, and becoming confluent or merged in the central line on the anterior and posterior segments. Subdorsal lines very slender and indistinct, dusky green. Spiracular line yellow. Between the subdorsal and spiracular lines a row of small slanting purplish blotches. Back studded with very minute yellowish tubercles.

Var. 2. Back greenish white. Central dorsal line pinkish or rose-colour. Subdorsal lines ditto. Down the centre of the back a series of large rose-coloured and rusty red goblet-shaped blotches, becoming faint or merged in the central line on the anterior and posterior segments. Spiracular line waved, rose-colour. Subdorsal and spiracular lines connected by a number of slanting rose-coloured streaks. Belly pale sea-green or greenish white, with a central white line. Back studded with numerous small white tubercles.

Var. 3. Whole of the back suffused with rose-colour. Subdorsal lines yellowish. Dorsal blotches edged with yellow. Spiracular line interrupted with yellow patches. Belly greenish white. Ventral segmental divisions white.

This larva tapers considerably towards the head; it is very local, but occurs in some plenty in some parts of Buckinghamshire, where, however, it is confined to the open spaces between and near the beech woods. It feeds upon the petals of almost any flower which happens to grow in the locality, *e. g.*, Centaurea nigra, Knautia arvensis, Gentiana Amarella and G. campestris, Apargia hispida, Origanum vulgare, Prunella vulgaris, Galium Mollugo, &c., preferring the two first-named. It is full-fed in September. The pupa, which is enclosed in an earthen cocoon, has the thorax and wing-cases golden yellow suffused with red. Abdominal divisions and tip red. The perfect insect appears in June.—*H. Harpur Crewe; Drayton-Beauchamp, September* 22, 1860.

Description of the Larva of Eupithecia helveticata.—Short and stumpy, the same thickness from tip to tail. Back and belly bright green. Central dorsal line dark green. Subdorsal lines pale yellow. Spiracular line yellow, waved. Anal tip of central dorsal line purplish. Head slightly bifid, dusky, curved inwards. Central ventral line pale yellow. Spaces between the subdorsal and spiracular lines darker green than back and belly. Feeds on the common juniper (*Juniperus communis*). Full-fed throughout September. Resembles in many respects the larva of E. sobrinata. For the larvæ from which the foregoing description is taken I am indebted to the kindness of Mr. Andrew Wilson, of Edinburgh. The pupa, which is enclosed in an earthen cocoon, has the thorax and abdomen bright green, the latter sometimes yellowish. Wing-cases much darker, very transparent. Central dorsal line dark green. Abdominal divisions and frequently the border of wing-cases reddish. Tip of abdomen blood-red. Under side of ditto yellowish.—*Id.*

Description of the Larva of Eupithecia subumbrata.—

Var. 1. Very long and slender, tapering very much towards the head. Ground-colour dull yellowish green. Central dorsal line broad, dark green, narrower at the segmental divisions. Subdorsal lines dusky, very narrow and indistinct. Dorsal segmental divisions orange. Ventral ditto yellow. Spiracular line dusky green. On each side of the head and anal segment a yellowish line.

Var. 2. Ground-colour dirty greenish brown. Central dorsal line dusky olive. Subdorsal lines ditto, narrow. Posterior segments reddish. In other respects resembles var. 1.

This singular long thin larva I have been in the habit of taking at intervals for some years past in Buckinghamshire. It feeds upon the same plants and in the same localities as Eupithecia satyrata, preferring perhaps Apargia hispida and Crepis taraxifolia. It is full-fed at the end of August and throughout September. The pupa, enclosed in an earthen cocoon, has the thorax and wing-cases dark green. Abdomen ochreous, tip dusky red. The perfect insect appears in June.—*Id.*

Reappearance of Leucania putrescens at Torquay.—Last night I was fortunate enough to take a fine specimen of this insect, about a quarter of a mile from the place where I took them before. It is more than a month later than I took the species last year, in consequence, I suppose, of the bad weather. I found it on the flowers of Teucrium Scorodonia, which plant is very attractive to moths in general.—*R. M. Stewart; 3, Park Place, Torquay, Devon, August* 28, 1860. Since my last communication I have taken two more specimens of L. putrescens; they are both apparently fresh from the pupa.—*R. M. Stewart; September* 3, 1860.—*From the 'Intelligencer.'*

Discovery of the Food-plant of Nemotois scabiosellus.—The larva of Nemotois scabiosellus is found; we have bred it from the egg; its food-plant is Scabiosa arvensis. We repeated an attempt which we made three years ago, and which then failed; we collected the specimens we found *in copulâ* and some scabious heads, on some of which both males and females were sitting. We observed the females, both out of doors and in our breeding-cage, at work laying their eggs. The flowers and seeds are the first abodes of the larvæ; the eggs are laid in the fructification of the scabious flowers, each enclosed in a seed-capsule. When the interior of the seed has been eaten out by the larva it immediately uses the husk as a case, having gnawed a hole at the lower truncate end of the husk; at this age the larva seems to attack other seeds, boring into them and eating out the contents. Two of the larger larvæ have already made their large cases out of pieces of dried leaves, but how this process was performed has not yet been sufficiently observed. Probably the more advanced larvæ feed on the leaves of the scabious and other low plants. Some were observed in the act of gnawing a dry leaf of the upright fly-honeysuckle (*Lonicera Xylosteum*). The credit of these observations, and of the successful treatment of the insects, is due to my son Dr. Ottmar Hofmann.—*Communicated by Herr Hofmann, of Ratisbon, to Mr. Stainton, and inserted in the 'Intelligencer' of September* 8, 1860.

Capture of Hallomenus fuscus near Lee.—Accident the other evening led my friend Douglas to lay his finger on an example of Hallomenus fuscus, and for a few more nights (wet or dry) we visited the locality, on the outlook for more. Fortune did not condescend to reward me until two nights ago, when spying one sitting in a new place I examined it thoroughly, shouted for Douglas to come, and I think we took about one hundred between us, and nearly as many last night.—*John Scott; 13, Torrington Villas, Lee, S.E.; August* 31, 1860.—*From the 'Intelligencer.'*

Capture of Mycetophagus multipunctatus near Lee.—Whilst in search of a little Ceutorhynchus the other evening I happened to lay hold of a boletus containing a number of Mycetophagus multipunctatus, as well as a lot of the larvæ,—active little fellows who, every one, chose a different path across the paper on which the boletus was laid during examination, so that their capture again was rendered somewhat difficult.—*Id.*

Habits of Bledius tricornis.—The oozes here now, after the tide has gone down, and particularly if it should be a warm day (a thing which, I am sorry to say, is of rare occurrence this season), are literally swarming with Coleopterous insects, among which the showy Bledius tricornis is the most abundant: one can easily see where there is a colony of this insect, as each of them throw up little mounds of wet sand about half an inch high, before the mouths of their burrows; directly the sun appears they come out in thousands, and run from burrow to burrow. They look very conspicuous, owing to the bright colour of their elytra: as soon as the sun becomes obscured or the ground disturbed they run off as fast as they can to their habitations; on the re-appearance of the sun they emerge very slowly and cautiously, and if frightened then, or, when but a short distance from their burrows, they invariably run backwards into them. Some of them are brown, with pale straw-coloured elytra; these are, in all probability, individuals just arrived at maturity. If I had felt inclined to I am quite certain I might have filled several bottles with them. How they contrive to live I cannot imagine, as they must, during the high tides we have had for the last few days, have been covered with the tide for at least six hours each day; they appear, however, to thrive rather than otherwise, as directly the tide goes out they may be seen busily engaged reconstructing their burrows, which they do with marvellous rapidity and neatness. They first of all make, with their anterior legs and mandibles, a small hole sufficiently deep to contain their abdomen; after that is accomplished they work backwards in some extraordinary manner, shovelling out the wet sand with their posterior legs to the mouth of the hole; this they continue to do till they get down to a considerable distance: the sand which they throw up forms a barrier in front of their burrows, and is, I suspect, a short time prior to the rise of the tide, made use of to cover their holes, and so prevent the water from reaching them; this, however, I have never yet seen them do, so I cannot write positively. The insect which ranks next in abundance is Bembidium laterale, which, when the sun shines, runs in thousands over all parts of the sands far below high-water mark. Under seaweed B. pallidipenne hides, but is far from common; also in the same locality Aleochara obscurella, Phytosus nigriventris and Cercyon litorale; the latter insect has some remarkable varieties.—*Gervase F. Mathew; Raleigh House, near Barnstaple, September* 20, 1860.

On the Musical Powers of the British Species of the Genus Acalles.—In the July number of the 'Annals and Magazine of Natural History' appeared a most delightful paper "On Certain Musical Curculionidæ," by T. V. Wollaston, Esq. The musical insect there treated upon is a Teneriffe species of Acalles, and most accomplished *artistes* they appear to be. We are informed that "it was a constant source of amusement to make these creatures stridulate, or 'sing' as it was usually called, which they would invariably do for almost any length of time when alarmed." The "song" is produced, it appears, by "a minute and rapid vibration of the apical segment of the abdomen," the friction of which against the inner surface of the elytra is the means whereby the little curculionidous musician produces its melodies. Mr. Wollaston conjectures whether all the Acalles have this remarkable power, but, he adds, as far as regards the species found in the Atlantic Islands, he has little hesitation in believing that they have. On reading this very amusing and instructive paper I felt a strong desire to ascertain, if possible, whether our British species possessed any amount of musical talent, not that I for a moment expected them to bear a comparison with foreign professors, for I believe we must be content at once to yield the palm of musical proficiency to the foreign *artiste*; still I am so easily charmed with the simple melodies of my native land that I determined, if possible, to ascertain what degree of musical ability our own minute Acalles could lay claim to. During a few week's residence at Deal I had the good fortune to capture considerable numbers of two species of Acalles, A. Roboris and A. misellus. In the first instance I tried the powers of single specimens by placing them in pill-boxes, which I shook to alarm the insects, and then applied them to my ear, for some time without success; at length I distinctly heard the notes of A. Roboris, they were "soft, gentle and low," in fact, simple melodies. I next placed a dozen in a single box, which I shook and applied to my ear, when I was delighted by a complete curculionidous chorus, the effect I must confess being somewhat monotonous, in consequence of the performers all playing in the same key. The fact was however established of A. Roboris being musical, and certainly a much more accomplished musician than A. misellus, which requires much coaxing and pressing in order to obtain the slightest proof of its capabilities. On closely observing the Acalles when turned on their backs and teased into harmony I could, with the aid of a good pocket lens, distinctly observe the rapid vibrations of the apical segment of the abdomen. Mr. Wollaston refers to other Coleoptera, which possess in a greater or less degree the power of stridulation, particularizing some species of Longicorns. Of the British species of that family the Aromia moschata is certainly no despicable performer, but as far as my experience enables me to judge I consider the Cychrus rostratus to be the most accomplished English musician, although the various species of the genus Necrophorus must be allowed to be highly accomplished performers. I have not had an opportunity of testing the musical capabilities of the third British Acalles, the A. ptinoides.—*Frederick Smith, British Museum.*

Capture of Tropideres sepicola—I have great pleasure in recording the capture of another specimen of this rare Curculio, by stripping off the bark of a semi-decayed oak in Buddon Wood; this being the third British specimen discovered.—*F. Plant; Leicester, September* 10, 1860.

Capture of Trichodes hispidus in Leicestershire.—Late in July last, accompanied by Mr. F. Plant, of Leicester, I visited Buddon Wood, near Quorndon, Leicestershire, in search of Coleoptera, and on removing some semi-decayed bark from a young oak tree observed specimens of Trichodes hispidus underneath. We each succeeded in capturing several. We again visited the spot a month later, and then captured more specimens under similar circumstances on the same tree, and also underneath the decaying bark of several others near.—*John S. Harris; Burton-on-Trent, September* 11, 1860.

Sisyphus in Manchuria.—There is a nice little bay on the Manchurian coast which rejoices in the name of "Sio-wu-hu." You land on the sandy beach, to the left of a clear running stream, and you see before you a green level plain, bounded by distant hills. Cattle and horses graze here, for although the soil is sandy, yet the pasturage is good: the bird's-foot trefoil grows on it, in company with many grasses not to be distinguished from those of England,—the very dandelion seems the same; but on the outlying precincts, and among the young oaks which skirt the plain, that glorious wide-mouthed blue-bell (*Platycodon grandiflora*) blooms in all its pride, and Trollius asiaticus is as common as buttercups in a Hampshire meadow. Now the Manchurian bulls have stamped bare patches in this small savannah, and have also left other traces of their presence: in these deposits, associated with Aphodius, Geotrupes and Outhophagus, we discover our Sisyphus. You suppose we easily win this prize: on the coutrary. What is that dark body moving steadily and slowly across the plain? It is a herd of cattle commanded by a patriarch bull, with a great black head, reddish eyes, short horns and a dewlap that nearly touches the ground. We are serenely engaged in disentombing Sisyphus, and we just look up and continue our occupation: the moving mass of cows and calves, led on by the patriarch, steadily advances; there are many stoppages and much pawing of the ground, and some low bellowings, but onward it comes. Prudence suggests a retreat; courage and a desire for more specimens of Sisyphus, urge our remaining; so putting on an indifferent air, we go on turning over the sandy deposits: this seems to have some effect upon the bovine party,— patriarch bull, his admiring cows and their offspring, the playful calves, make a dead halt and stand staring. Thus we continue while a shard remains unexamined, when we rise and resume our stick, and stroll, with a would-be-careless air, towards the beach: the patriarch bull with the great curly head and dewlap and all his wives and concubines follow us down to the water, where, a boat being handy, we leave them. Whether our smaller stercoraceous ebon friend, with the gray curved hind legs, of these Tartarean regions, be the Sisyphus Schæfferi of the illustrious Swede, or a new species not yet described, remains for the present a mystery.—*Arthur Adams; Sio-wu-hu, Manchuria, August* 16, 1859.

The "Gold Bug," a Reminiscence of Rio.—It is a cloudy day when we shoot across the glorious harbour of Rio, eager to explore the sides of the Sugar-loaf Mountain. We rejoice that the sun so beneficently veils his fierce rays in a misty atmosphere, for our toilsome climb will be more pleasant. We have not gone far before the enthusiasm of the party breaks out into exclamations of surprise and delight at the beauty of the scenery, and we pronounce both Fauna and Flora to be quite as attractive as Humboldt and Von Martius have painted them. How the great showy butterflies languidly flap their particoloured wings! The buff corolla of the Thunbergia rivals in its modest beauty the variegated gaudy passion-flowers that hang in rich clusters from the branches of the trees. In damp, sequestered shadowy nooks the ferns are splendid, and as for the wasps and ants I fear they would startle even Mr. Smith, of the British Museum, from his calm propriety, nor would his neighbour in the insect-room, friend Adam White, be less astonished at the beetles and the myriapods. Half afraid of snakes I penetrate a dense thicket, and crawl on hands and knees to the stems of some wild plantains, meeting on the road all sorts of "clammy, slabby, creeping and uncomfortable life." Under the decaying leaves I find Juli of almost fabulous dimensions; Polydesmi with sculptured segments, centipedes wriggling away with rapid moving legs and serpentine undulations, and that strange connecting link between the spiders and scorpions, yclept Phrynum and very beautifully figured, if I rightly remember, by Mr. Curtis in Griffiths' 'Cuvier's Animal Kingdom;' it is a harmless arachnidan, inert and sluggish, and spins no web: it most resembles in its habits the "harvest-men" of English stubble-fields. Here, too, I come across some living specimens of that curious snail Streptaxis, crawling over the moist leaves, and am surprised to find it extrude a very respectable proboscis, which at once removes it from the herbivorous Helicidæ: it should form a family of itself, Streptaxidæ, to follow Oleacinidæ, and in turn be followed by Testacellidæ, in the same manner as we have Buliminæ, Helicinæ and Limacinæ. But whither am I wandering, and what has become of the "gold bug"? Some of our party had been reading Edgar Poe's mysterious and imaginative tale of the bug, and, what is more, actually believed in the existence of such an insect; and, as if to confirm them in this belief, and to prove the wondrous bug to be no myth or fabulous creature of the poet's brain, I captured in my sweeping-net a splendid glittering Cassida, the elytra and thorax as of burnished gold. With laudable pride and exultation I display my prize; but, questionable mendacity, I also proclaim it to be the veritable gold bug of the American. One of my companions, now wandering in the wildest parts of Borneo,—a creature of as wild an imagination as the writer of the "Tales,"— eagerly desires a closer inspection—nay, he would hold it in his hand. Excited, he no sooner deposits the envied object in his palm, and caught the glitter of its golden wings, than lo! away flies the "gold bug," leaving dismay and amazement depicted in the faces of the surrounding group. Vain were the regrets at the loss of the "bug of gold,"—not another specimen was seen that day.—*Arthur Adams.*

A Question for Physiologists.—Last June I picked up at Pitton, near Salisbury, a common cockchaffer (*Melolontha vulgaris*) alive, and crawling in the following condition. Right elytron removed, leaving abdomen uncovered, of which only the shell remained, the intestinal organs having been all scooped out, excepting a very small portion at the anal extremity. Thorax with two large cavities on the upper side. Head, legs and feet uninjured. The cause of the injuries inflicted on the luckless cockchaffer was probably a bird, but what struck me most was the apparent unconcern with which the insect was able to move about. I placed it in a pill-box, and at the end of twenty-four hours found it still alive, though in a torpid and dying state. *Query.*—In what part of the insect was its vitality inherent?—*A. R. Hogan; Rampisham Rectory, Dorchester, September* 3, 1860.

Proceedings of Societies.

ENTOMOLOGICAL SOCIETY.

September 3, 1860.—H. T. STAINTON, Esq., V.P., in the chair.

The following donations were announced, and thanks ordered to be presented to the donors: —'Monographie des Elaterides,' par M. E. Candèze, Tome troisième; presented by the Author. 'Verhandlungen der Kaiserlich-Königlichen Zoologisch-Botanischen Gesellschaft in Wien,' Vol. ix.; by the Society. 'The Proceedings of the Zoological Society of London,' 1860, Parts I. and II.; by the Society. 'Stettiner

Entomologische Zeitung,' 1860, Nos. 4—9; by the Entomological Society of Stettin. 'Coléoptères des Iles Açores,' par Frederic Tarnier; by the Author. 'The Zoologist' for September; by the Editor. 'Proceedings of the Literary and Philosophical Society of Liverpool during the Forty-ninth Session, 1859—60;' by the Society. 'The Journal of the Society of Arts' for August; by the Society. 'The Entomologist's Weekly Intelligencer,' Nos. 201—204; by H. T. Stainton, Esq.

Election of a Subscriber.

John Ellerton, Esq., of 9, Westmoreland Place, Westbourne Grove, was elected a Subscriber to the Society.

Exhibitions.

Mr. Stevens exhibited two examples of Diachromus germanus, recently captured in the town of Deal; one having been found by Mr. Smith, jun., crawling on the pavement; the other by himself, on the wall of a house.

Mr. Waterhouse exhibited examples of the larva, pupa and imago of Trichodes hispidus, forwarded to him by Mr. Plant, of Leicester.

Mr. Waterhouse also exhibited two species of Dorcatoma, both bred from rotten wood brought from Richmond Park. The first was D. flavicornis, and was merely exhibited for comparison with the second, which Mr. W. believed to be the D. chrysomelina of Sturm. It differs in being more oblong than D. flavicornis. The three terminal joints of the antennæ are much more dilated in the male, and the penultimate and antepenultimate joints have the upper edge emarginate. In specimens which appear to be females the corresponding joints differ much less from those of D. flavicornis; still the upper edge is slightly emarginate, and the three club joints are more unequal in size, the first being relatively larger.

Mr. Janson remarked that Mr. Frederick Smith had captured, some twelve years back, on old oaks near Peckham, a species of Dorcatoma which agreed well with Sturm's figure and description of D. chrysomelina; he had himself likewise taken the insect in the same locality, and had labelled it in his collection without doubt as D. chrysomelina, *Sturm.*

Mr. Pelerin exhibited a beautiful variety of Staphylinus cæsareus, having the pubescence entirely fulvous. Also, Platystethus nitens and Mycetophagus 4-guttatus, taken at Hornsey, both these species being of very rare occurrence in Britain.

Mr. G. King exhibited some fine varieties of Crambus paludellus, Argynnis Euphrosyne, Arctia villica and Calligenia miniata. Also, a series of Acentropus niveus, from Horning Fen, Norfolk.

Mr. Lewis exhibited specimens of Hallomenus humeralis, which he had lately found in abundance on a fence at Charlton. This species was first recorded as British in the 'Entomologist's Annual' for 1859.

Mr. Stainton exhibited some larvæ of Nemotois scabiosellus which he had received from Herr Hofmann, of Ratisbon. They had been obtained by collecting the scabious-heads in which females had been observed ovipositing. The difficulty attendant on the finding of these larvæ was now apparent, as the young larva fed *in* the seeds, and then made use of the seed-husk as a case, till it had attained a sufficient size to require a flat leaf-made case. Whilst ensconced in the seed-husk the larva could scarcely be detected, the inhabited seed-husk resembling so precisely the other seeds of the plant.

Mr. Janson exhibited specimens of a new British Donacia, D. Comari (*Ahr.*), *Suffrian*, taken by the late James Foxcroft in Perthshire, in May, 1854. He remarked that this species so nearly resembled the common D. sericea, *L.* (D. Proteus, *Steph.*), that it has probably been confounded with it in some of our collections; it may, however, be readily distinguished by its parallel elytra, and the totally different structure of its antennæ, which are much shorter and stouter, with the third joint only just perceptibly longer than the second, and but very little shorter than the fourth; whereas in D. sericea the antennæ have the third joint fully half as long again as the second, and nearly as much shorter than the fourth. He observed that the occurrence of this species in Britain was particularly interesting, as it had hitherto been found only in the Hartz mountains, where it was discovered about the year 1806, by Dahl, who, from mercenary motives, not only kept its true locality a secret, but circulated various absurd and false statements respecting it; thus, Ahrens, in his 'Monograph of Donacia' (Neue Schriften der Naturforschenden Gesellschaft zu Halle, 29, 1810), relates that Dahl had beaten it in some numbers from pine trees. Twenty years subsequently, however (in the summer of 1830), Ahrens found the beetle in considerable plenty in the Hartz, on the leaves of Comarum palustre; and at the end of July in the following year Dr. Suffrian met with it under similar circumstances in the same locality (*vide* Ent. Zeit. Stett. vii. 85, 1846). Mr. Janson further remarked, that although our British species of Donacia are readily separable by external characters, several North-American species are not only so closely allied *inter se*, but, moreover, bear so strong a resemblance to certain European species, that while, on the one hand, certain slight yet apparently constant peculiarities in habit induce the conviction that they are really specifically distinct, it is, on the other hand, utterly impossible to find good diagnostics whereby to characterise them. A few evenings since, being engaged with Mr. Baly in endeavouring to throw the North-American Donaciæ of that gentleman's extensive collection into species, we remarked that many of the specimens presented an exserted organ at the apex of the abdomen; these we at first supposed to be males, but the microscope soon convinced us that they were females, and that the organ thus protruded was the ovipositor within its sheaths. To clear up the doubts we at first had on this point we examined many specimens, and the result not only satisfied us that this organ is the ovipositor, but that the structure both of the superior and inferior valves, especially the first, varies so much in apparently closely-allied species as to afford reliable characters for their discrimination.

Mr. Rye exhibited a Bagöus, apparently distinct from the recorded British species, taken at Hammersmith. Also, on behalf of Mr. Solomon, the following rare Coleoptera: — Aleochara ruficornis, from Campsie Glen, Glasgow; Philonthus lepidus, from Southport; Omias sulcifrons, from York; and Phlëophagus Spadix, from Purfleet.

Mr. McLachlan exhibited some Lepidoptera recently captured in the Isle of Wight, including fine specimens of Triphæna subsequa and Depressaria bipunctosa, and a long series of a Gelechia allied to G. instabilella and G. ocellatella, but considered by him perfectly distinct from either.

Mr. McLachlan also brought for distribution among the members a series of bred specimens of Coleophora saturatella.

Mr. Janson read the following letter, lately received by him from Walter Elliot, Esq., of Hawick, N.B., dated August 30, 1860:—

"Dear Sir,—I have not been unmindful of the interesting conversation I had with you in the month of June last, on the subject of the Hylobius Abietis, but several things have occurred to call me away from home, and I have not been able to make much investigation, until within the last few days, into the ravages of the insect.

"I find that although well known to the working foresters with whom I have conversed, the insect has attracted little attention from proprietors of woodlands and country gentlemen.

"The larch is known to be failing throughout Scotland, and I believe throughout Britain; and much speculation exists as to the cause or causes. The Scottish Arboricultural Society, instituted in 1854, offered a prize in 1857 for the best essay on the causes of decay in the larch ('On the Dry Rot and other diseases in Larch and Spruce'), and in the volume of their 'Transactions' for the current year I find a short paper by James McNeoll, forester, of Abercairney, Crieff, which makes no mention of the Hylobius as a primary agent of destruction, but dwells largely on the physiological conditions required for a healthy plantation, and observes, incidentally, that the plants in crowded plantations become sickly and etiolated, and thus 'the languid circulation of the tree in summer invites the attacks of a species of beetle, whose ravages destroy the foliage, thus impairing the wood-producing foliage or power of assimilation.'—P. 8.

"Brown, in the 'Forester,' second edition, 1849, does not notice the beetle at all, but in the most recent work I can find on the subject, intituled 'The Larch Disease,' by Charles McIntosh, Blackwood, 1860, it is mentioned, among 'the accidental misfortunes the larch is liable to,' as evidently a very minor cause of the mischief so extensively prevailing in larch plantations, but its operations are limited 'to attacks on newly-planted larch, or such as are sickly.'—P. 113.

"The main causes of decay, according to these authorities, are:—

"1. The employment of bad seed, the produce of sickly or unhealthy trees. The larch appears to have been indiscriminately and very extensively planted on all kinds of soil. Many of these, particularly rich low-lying soils and undrained wet lands, are uncongenial to the nature of the tree, and the plantations have failed more or less accordingly, exhibiting what is called 'dry rot or decay at the heart.' It seems to be a fact that unhealthy trees produce a larger crop of cones than sound ones, and hence much bad seed has been gathered and distributed.

"2. Plantations on the old redsand-stone formation invariably fail; and this rock is very prevalent in Scotland.

"3. Plantations of larch on ground previously occupied by other coniferous trees, or indeed any trees, also fail.

"There is no doubt that larch timber has been much infected by what the foresters call 'dry rot' or decay at the heart, and probably the use of low, or rich, or wet soils may have been the occasion of this. I am also prepared to admit that mischief may have resulted from the employment of morbid seed. But I believe the attacks of this beetle have had far more to do with the destruction of trees than has hitherto been suspected. My present forester, a native of Sutherlandshire, says he has been familiar with the attacks of the beetle in the north for the last ten years. It has certainly been unknown in the south, where I now am, until within two or three years, and now it is swarming in every wood. Six years ago, when on a visit from India to my father-in-law in Ayrshire, the Hylobius was pointed out to me by the old forester at Blairquhan as a recent scourge which had just made its appearance. It appears, therefore, to have travelled from the north gradually towards the south. Several persons here whose attention I have drawn to the subject, and who have consequently directed observation more carefully to the matter, have been struck with the extent of the damage inflicted by the beetle on the woods around, which they had previously attributed to such-like vague causes as dry rot, fungus, ulcers, &c., and I am persuaded that more careful investigation will invest the ravages of the Hylobius with a degree of importance they have not hitherto received.

"By this post I send you a small box containing specimens of the beetle of both sexes. One pair at least were captured in conjunction. I also send pieces of a stem of a young larch, showing how completely they have gnawn the bark. I find trees of all ages are attacked by them. On large trees the twigs that have been gnawn wither, but the rest of the tree looks healthy. Branch after branch, however, is destroyed, and then the top withers and the trunk dies. The numbers of the beetles are so great that I can suggest no means for destroying them. They are evidently on the increase, and will soon leave not a larch alive. I have also found them attacking the spruce occasionally.

"Have you been able to make any more discoveries of the habits of the Hylobius from the German work you showed me? I should be glad of any hints you can give me to direct further examination of the subject. As far as I can observe, the breeding season is now begun, but I have failed to discover any eggs or larvæ"—*E. S.*

NOTICES OF NEW BOOKS.

'*Journal of the Proceedings of the Linnean Society.*' Supplemental to vol. iv. Zoology. July 18, 1860. 8vo; 112 pp. letterpress; 1 outline Plate. Price 2*s.*

THIS part of the 'Journal of the Proceedings of the Linnean Society' contains three papers:—1. "Descriptions of New Species of Hymenopterous Insects collected by Mr. A. R. Wallace at Celebes;" 2. "Descriptions of Hymenopterous Insects collected by Mr. A. R. Wallace in the Islands of Batchian, Kaisaa, Amboyna and Gilolo, and at Dory in New Guinea." Both these papers are by Mr. F. Smith of the British Museum. 3. "Catalogue of the Dipterous Insects collected in Amboyna by Mr. A. R. Wallace, with Descriptions of New Species;" by Mr. F. Walker, F.L.S.

I am extremely pleased to see the Linnean Society adopting plain Roman type almost exclusively in the 'Proceedings' before me. There is something extremely confusing and therefore objectionable to my mind in the alternation of Roman and Italic sentences and words, as in the 'Insecta Britannica' and other modern works on Entomology.

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